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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,017	03/16/2004	Alan S. Bitzer	C-2812	2810

7590 06/15/2005

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EXAMINER

WALKER, KEITH D

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/802,017

Applicant(s)

BITZER ET AL.

Examiner

Keith Walker

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1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. An Information Disclosure Statement has not been filed as of the writing of this office action.

Drawings

2. The drawings received on March 16, 2003 are acceptable for examination purposes.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claim 4 recites the limitation "said remote-sense pressure regulator" in line 1-2.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by US Publication 2002/0136942 (Kashiwagi).

Regarding claims 1 & 5, Kashiwagi teaches a fuel cell stack system fed by a hydrogen supply through a pressure control valve and an ejector. The ejector has two

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inlets for receiving pure fuel and effluent from the stack and an outlet for supplying the fuel cell stack. Anode effluent from the fuel cell stack is routed through a pump back to the ejector (Fig. 1, Abstract, Para. [0018-0022]).

Regarding claim 3, the pressure sensor at the output of the fuel cell stack controls the pressure regulator located at the input of the ejector (Fig. 1, Para. [0018, 0026-0028]).

7. Claims 1, 4 & 5 are rejected under 35 U.S.C. 102(a) as being anticipated by US Publication 2003/0148167 (Sugawara).

Regarding claims 1 & 5, Sugawara teaches a fuel cell stack system fed by a hydrogen supply through a regulator and an ejector. The ejector has two inlets for receiving pure fuel and effluent from the stack and an outlet for supplying the fuel cell stack. Anode effluent from the fuel cell stack is routed through a pump back to the ejector (Fig. 1, Abstract, Para. [0075-0082]).

Regarding claim 4, a fuel bypass line around the ejector is used to feed the fuel cell stack (Fig. 5B, Para. [0151-0153]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1 & 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwagi.

The teachings of Kashiwagi as described above are incorporated herein.

Regarding claim 2, Kashiwagi doesn't speak directly to the use of a pressure sensor located before the fuel cell stack.

The pressure sensor is used to detect the pressure difference created when more power is required of the fuel cell and the reactants are used faster than supplied. This vacuum will be present in the fuel line both before and after the fuel cell. So while the pressure sensor is taught as placed after the fuel cell, rearranging the sensor to locate it before the fuel cell is just a rearrangement of parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the sensor before the fuel cell, since it has been held that rearranging parts of an invention involves only routine skill in the art (*In re Japikse*, 86 USPQ 70).

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwagi as applied to claim 1 above, and further in view of US Patent 3,961,986 (Waldman).

The teachings of Kashiwagi as described above are incorporated herein.

Kashiwagi does not speak directly to the use of a pressure sensor before the fuel cell.

Waldman teaches using a pressure sensor before the fuel cell to control the pressure regulator supplying the fuel (Fig. 1, 4:15-28).

The motivation to use the pressure sensor is to increase the efficiency of the ejector by eliminating any backpressure on the ejector.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the fuel cell system of Kashiwagi with the pressure sensors of Waldman to make a better operating ejector by eliminating the back pressure through the monitoring of the fuel pressures before the fuel cell.

11. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwagi in view of Sugawara.

The teachings of Kashiwagi and Sugawara as described above are incorporated herein.

Regarding claim 4, Kashiwagi teaches sizing the ejector appropriately to the applicable use of the fuel cell (Para. [0004]). Kashiwagi does not speak directly to the use of a bypass line around the ejector.

Sugawara teaches using a bypass system for the ejector in cases where the demand for hydrogen exceeds the maximum available flow of the ejector (Para. [0153]).

The motivation to use the bypass stream is to provide a means of supplying the fuel cell anode with the appropriate fuel needed when the demand exceeds the operation of the ejector.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the fuel cell of Kashiwagi with the bypass system of Sugawara to create a fuel cell that can better meet the power demands at peak operation times.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Walker whose telephone number is 571-272-3458.

The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kdw


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER